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INTERNATIONAL EXHIBIT OF SCIENTIFIC PHOTOGRAPHY



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EXHIBITION

THE FIRST INTERNATIONAL EXHIBITION OF SCIENTIFIC AND APPLIED PHOTOGRAPHY

JANUARY 2ND TO 10TH

HOURS: WEEK DAYS 9 TO 9, SUNDAYS 12 TO 7

ART CENTER SCHOOL 2544 W. SEVENTH STREET • LOS ANGELES



CATALOG SUMMARY

SIX HUNDRED PHOTOGRAPHS present tangible evidence of the miracles of modern science. The mechanics of actually taking a picture and the ordinary uses of photography are rapidly becoming common place. But few are aware of the new facets of Nature continuously being exposed to human vision for the first time by the magic of photography. Starlight, too faint to perceive through the most powerful telescope, by photography is built up over a long exposure period to a visual image. A fourth dimension is being given to facts that were only theory until the miracle of the high speed camera, the X-ray and the photomicrograph provided visual proof. A fraction of a second of transient beauty is caught permanently by color photography. Unusual and authentic examples of the amplification of modern man's visual sense is offered by the First International Exhibit of Scientific and Applied Photography, which will be held at the ART CENTER SCHOOL, January 2 to 10.

KAY FRANCIS Trichrome Carbro color print



By **JAMES DOOLITTLE**, Los Angeles, California.



COLOR PHOTOGRAPHY PROCESSES

Modern color photography is concerned with subjects as they come, not with subjects chosen specially for their brilliant coloration. Color workers have graduated from photographing the customary bowl of fruit. Photographers now use color to enhance the beauty of their photographs. This is only natural, since the novelty stage is over for many workers. It is realized that the fundamental aim of photography is exact reproduction of the scene before the camera, in which color plays an important part. This exhibit bears out these facts. Some of the British Vivex color prints are of unusual merit. Color processes represented in the exhibit include: Finlay Plates, Eastman Kodachrome, Defender Chromatone, Eastman Wash-Off Relief, Autotype Trichrome Carbro, Vivex Natural Color made by British Color Photographers Ltd. Your special attention is directed to new uses of color photography by the medical profession.

ON EXHIBITION AT ART CENTER SCHOOL JANUARY 2 TO 10



COLORED DANCER Separation negatives made with Cummins Single-Mirror one shot camera. Defender Chromatone Print Process. (The reproductions herewith do not of course do justice to the originals in the Exhibit.)

NORRIS CUMMINS, N.Y. Prints by F. Snyder.



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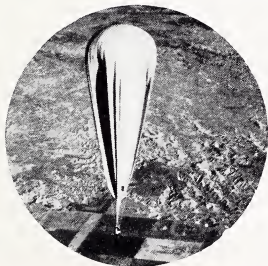
AERIAL • ASTRONOMY • METEOROLOGY

A remarkable series of aerial photographs by Major Albert W. Stevens, U.S. Army Air Corps, show the flight of the stratosphere balloon, Explorer II. Included in the exhibition are prints made with a five lens and ten lens camera manufactured by Fairchild Camera Corp. Exhibited is a photograph made at the highest elevation yet reached by man showing 105 miles of the earth's surface in one exposure. Infra-red photography shows for the first time the division between the troposphere and the stratosphere. Probably no branch of science owes so much to photography as astronomy. The photographic plate possesses one great advantage over the eye. It can go on building up a record of a faint object so that it eventually becomes visible. Exhibited are: Remarkable Total Solar Eclipse photographs, Orion nebula, the moon, section around "Theophilus" crater. Waterspouts, cloud studies and lightning photography.

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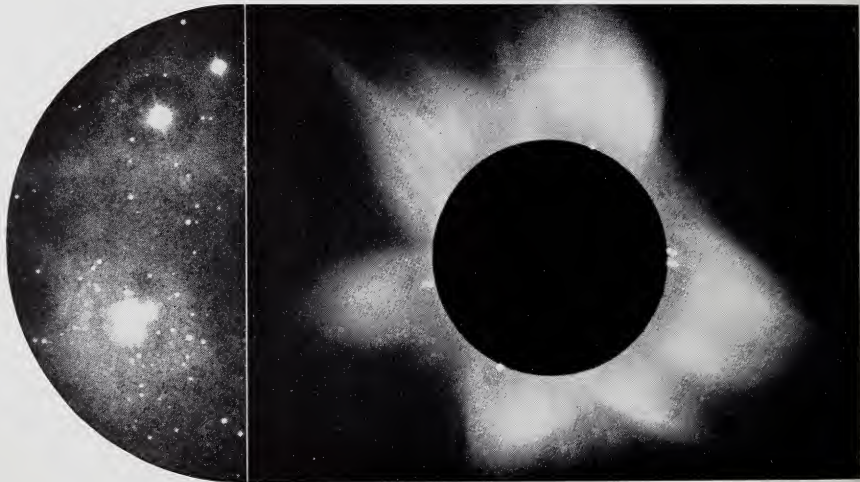


FLYING HER OWN MOTH Air
Photo at 8,000 feet, by H. F. Low,
Norfolk Aero Club, Norfolk, England.



ON ITS WAY TO THE STRATOSPHERE Explorer II over a
"farmland island" in the Bad Lands of South Dakota. Photographed
from a plane at 16,000 feet altitude by Sergeant G. B. Gilbert and
Captain H. K. Baisley of the U. S. Army. Fairchild Aerial Camera.

★ **LEFT: ORION NEBULA** Photographed in infra-red, by Staff of Mt. Wilson Observatory, California. **RIGHT: TOTAL SOLAR ECLIPSE** Ten seconds exposure by Dr. T. C. Gardner, of the National Geographic Society.





PHOTOMICROGRAPHY Annealed copper wire Mag. 2500X



By **R. G. GUTHRIE** and L. F. Lottier, of Chicago, Illinois.

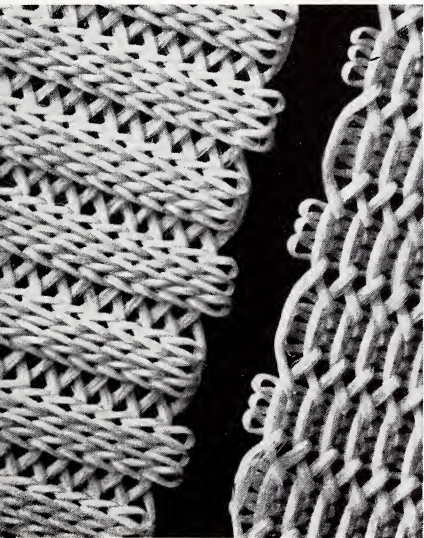
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PHOTOMICROGRAPHY • METALLOGRAPHY

The section on photomicrography in the present exhibit is a splendid record of the value which this art has contributed to modern research. Like the X-ray, photomicrography is one of the most valuable tools in the hand of the medical world. Growth, development and cure of almost every known disease is recorded and preserved for generations to come by the equipment and methods of photomicrography. Sections through the human eye enlarged 1000 times reveal the complicated structure of the retina, the rods and cones, and show at one glance the structure discussed for centuries past. The mitosis of the cell photographed at 3000 diameters reveals step by step one of the most fundamental processes of life. The microphotography of metals has made it possible to travel safely at a speed of 200 miles an hour. Photographs of this type have contributed to protection and preservation of human life.

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★ **ACETATE FABRIC MAG. 40X** Showing front and back, by Charles S. Foster, Rochester, N. Y.

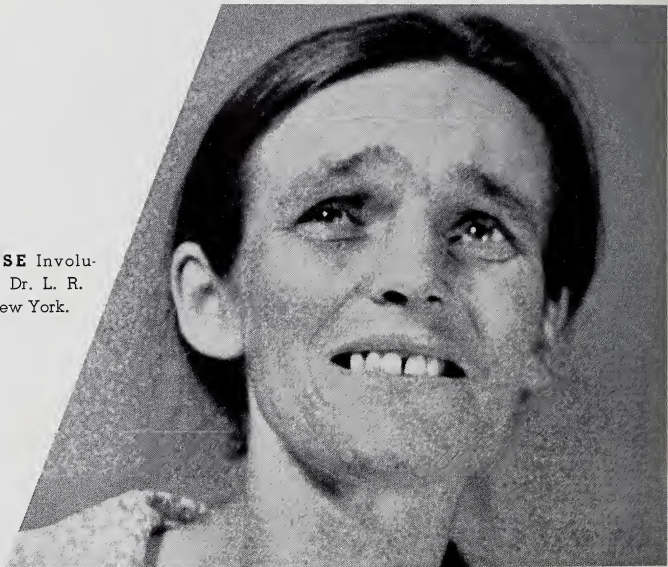


★ **COLONIES OF TUBERCLE BACILLI MAG. 22X**
Microphotography by Jean Keiffer, Norwich, Conn.

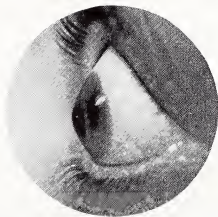




PSYCHIATRIC CASE Invol-
tional Melancholia, by Dr. L. R.
Wolberg, Kings Park, New York.



★ **EYE** Kiratoconus by A. Marfaing, Columbia University.



CRANIOTOMY Three examples from a series of photographs showing every phase of this involved operation. Photographed by Folmieri-Graflex Corporation, Rochester.

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RADIOGRAPHY • MEDICAL PHOTOGRAPHY

The advent of color into the specialized field of medical photography has provided a means whereby photographs can be attained which not alone demonstrate pathological destruction and alteration of tissue, but also show how the tissue actually appeared to the eye. Enthusiastic response of physicians, radiographers, and medical photographers manifested by the amount of exhibition material submitted proves an intense interest in this field of specialized work. Methods of photographing inside the living eye disclose high blood pressure, changes, aneurysm, near sightedness, and far sightedness. Exhibitors include Carnegie Institution of Washington, Department of Embryology; Dr. Max Thorek; Columbia College of Physicians and Surgeons; the Mayo Clinic; and Whitechapel Clinic, London, England. Specimens include brain operation sequence; cancer of the lung, liver, skin; psychiatric cases.

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★ **WOMEN IN WHITE** Paper Negative. Photograph of the operating room by Dr. Max Thorek, Chicago.



★ **X-RAY OF LILY** Study by Mrs. L. M. Rundlett, Strong Memorial Hospital, Rochester, New York.



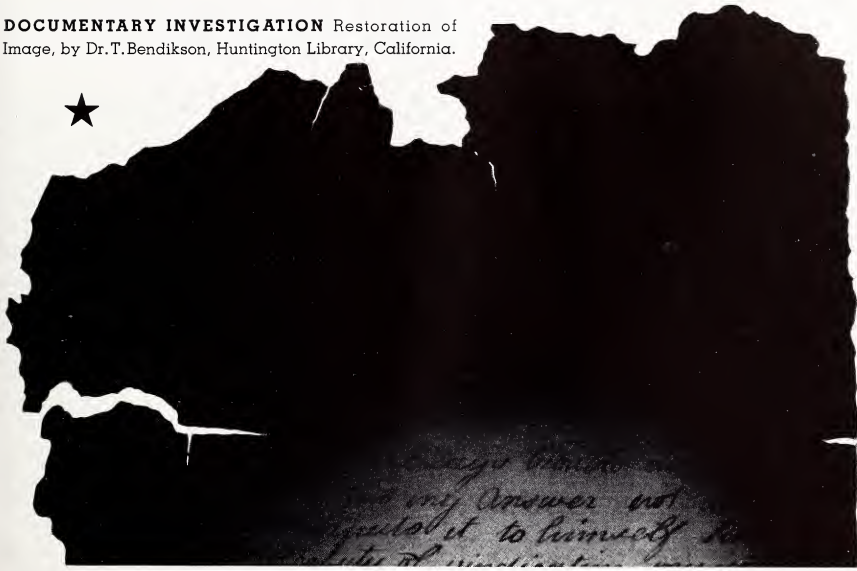


CRIMINOLOGY • DOCUMENTARY

The photographic files of almost any large police department will reveal true cases no less thrilling than those of the most imaginative writer of detective fiction. Special techniques reveal forgeries; fingerprints, both visible and latent; comparison of bullets extracted from the body and those fired from the weapon of the accused. Photography scientifically aids in reducing auto accident fatalities by placing the responsibility. An important phase of documentary photography is the micro-recording of printed matter. An entire Sunday newspaper may be recorded on one short length of film, and the file for an entire year, when recorded on film occupies only a few inches on the shelf. Books, ancient manuscripts and contemporary records of every sort are being recorded and preserved for posterity. In the exhibition, radio-graph investigations of paintings by "Old Masters" reveal true and forged.

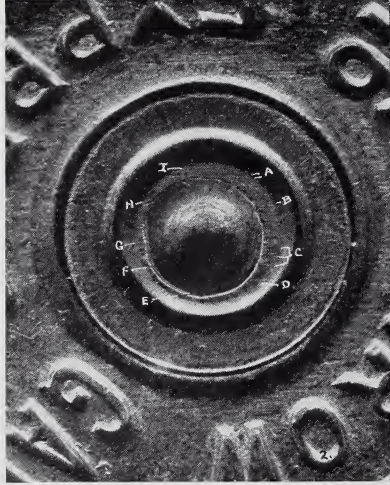
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DOCUMENTARY INVESTIGATION Restoration of
Image, by Dr.T.Bendikson, Huntington Library, California.

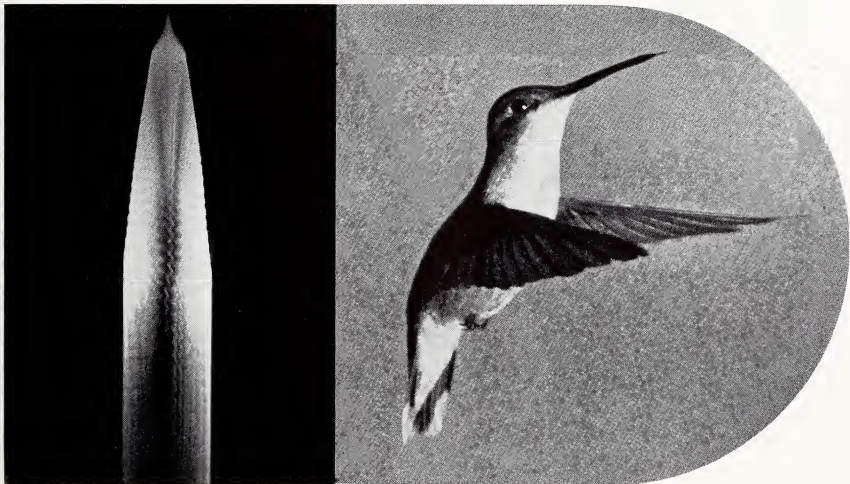


Chicago Tribune
The only answer was
to give it to himself
absolute of vindication

★ **CRIMINOLOGY** Comparative identification of shot gun shells. Evidence of the case of the People versus Jack Loraine by L. A. Waters, Syracuse, New York. (Print No. 427.)



★ **EXPLOSION** Made with the Fraser Mirror Camera by R. P. Fraser, Imperial College, London. ★ **HUMMING BIRD** Note tongue. Exposure $1/1,000,000$ sec. f:8, by Edgerton, Germeshausen and Grier, Massachusetts Institute of Technology.





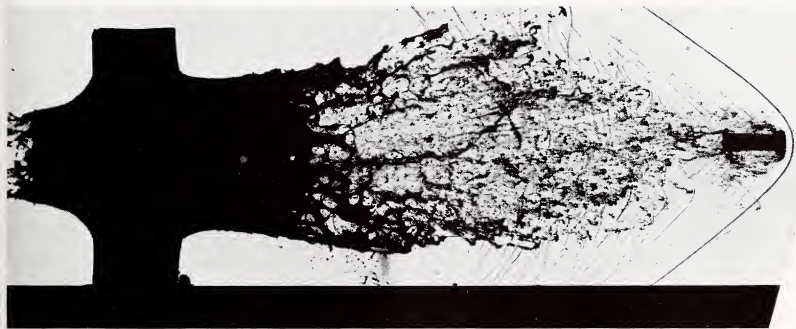
HIGH-SPEED PHOTOGRAPHY

High-speed photography finds many fields of application in both manufacturing procedures and scientific research. High speed photography reveals why a motor "knocks," shows tensions and stresses in moving parts of machines that would otherwise be hidden from the eye. The shape of bullets assumed after passing through various obstructions may be observed and analyzed. Perhaps the most striking exhibit of high speed photography are prints made in 1-1,000,000 seconds, by Clyde T. Ervin of the Remington Arms Corp. Several beautiful examples of flame photography by R. V. Fraser of the Imperial College of Science, London, show delicate patterns made by the flame as it passes through the combustion chamber. The extremely rapid motion of a humming bird's wings is stopped. Photographs by Edgerton, Germeshausen and Grier of the Massachusetts Institute of Technology show many phases of high speed work.

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SPARK PHOTOGRAPH OF BULLET IN FLIGHT Exposure 1/1,000,000 second. Made by Clyde T. Ervin, Remington Arms Co. Photographs of this kind are used to analyze ammunition.



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STEREOSCOPIC PHOTOGRAPHY

Stereoscopic photography aids in lending form to what would otherwise appear flat. Modern aerial photography as exemplified by the Fairchild Aerial Camera Corporation gives us the true story of erosion from the air. When viewed stereoscopically such prints assume amazing form and third dimensional reality. Medical subjects when treated stereoscopically give the trained observer a deeper understanding of the matter at hand. Crystalline forms, viewed through the stereoscope afford the student of geology a richer field of study than the "single-eyed vision" of the ordinary camera. In the field of natural history, minute plant forms assume beautiful third-dimensional qualities otherwise hidden from us until enlarged and examined through the stereoscope. Children's books are now on the market with a stereoscope ingeniously attached to the binding so that educational information may be dramatically pictured.

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★ **THE EYE** Abnormal reflections of the Cornea,
by A. Marfaing, Columbia University, New York.



★ **ICE FORMATION** Ice formed at the bottom of
the pool by Adolph W. Dreyer, St. Louis, Missouri.





PHYSICS • CHEMISTRY • SPECTROGRAPHY

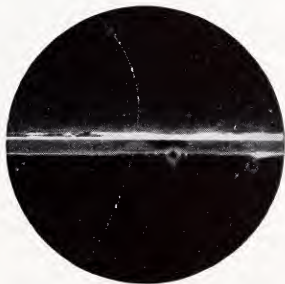
In the field of atomic physics and cosmic rays there are representative exhibits from the California Institute of Technology showing the studies leading to the award of the Nobel Prize in Physics. A group of photographic phenomena of importance in photographic theory is exhibited by workers throughout the world. Examples of the application of photography in absorption spectra are included in the exhibition. From the purely aesthetic as well as the technical aspect, the collection of floral studies made by Mrs. L. M. Rundlett, of the X-ray Department of the Strong Memorial Hospital are of great interest. Convection currents produced by heat; spark photographs; the Aurora Borealis; double beam spectra showing the ultra violet transmission of uranium glass; typical X-ray diffraction patterns are among the unique array of subjects in this section. Mt. Wilson Observatory shows the solar spectrum out to 13,500 Angstrom Units.

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THE DISRUPTION OF AIR At one-half million volts by Geoffrey Hoare, Birmingham, England.

COSMIC RAYS A positron produced by cosmic rays passing through a 6 millimeter plate of lead. One of a series of studies leading to the award of the Nobel Prize in Physics to Dr. C. D. Anderson, California Institute of Technology.

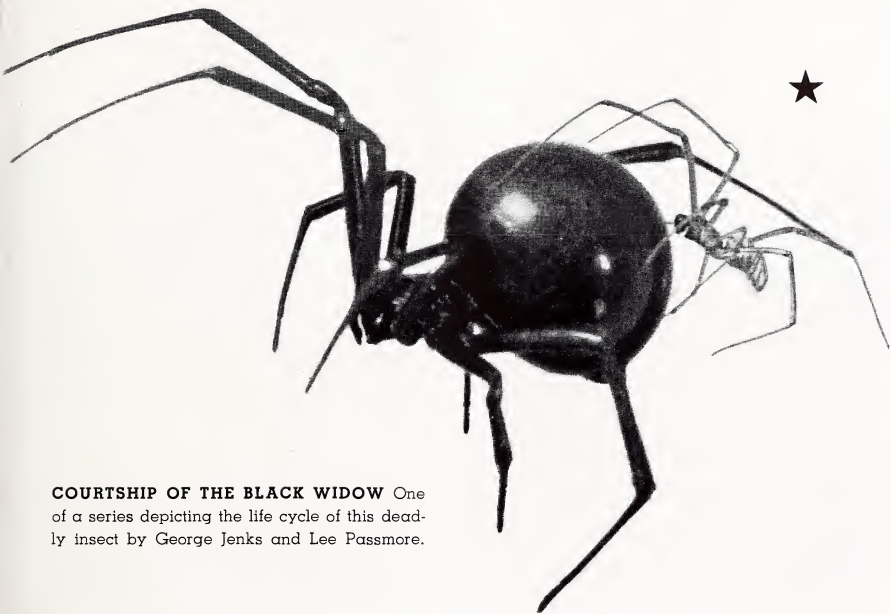


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NATURAL HISTORY PHOTOGRAPHY

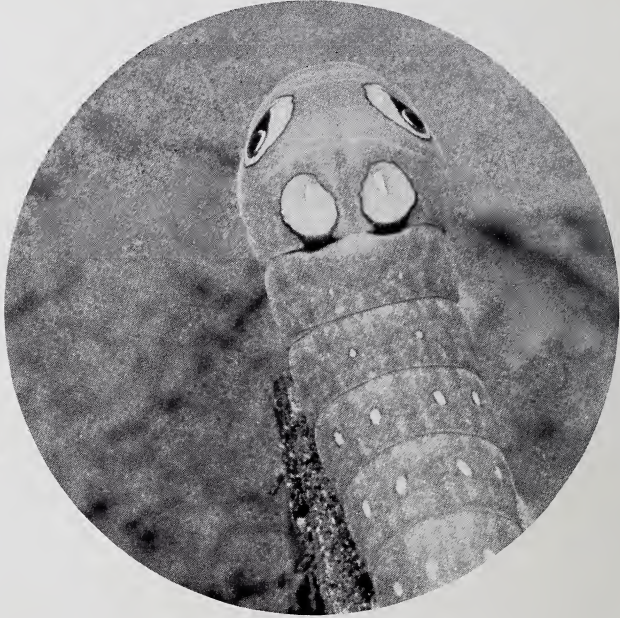
All through the ages men have interested themselves in the study of plants, animals, insects, birds and the natural world in which they live. Nature photography is a combination of two of man's interests—his oldest and his newest. The earliest records left by prehistoric man show his interest in the world around him. His drawings on the walls of caves bear mute evidence. Cave drawings date back at least 20,000 years. Photography scarcely 100. From England, Africa, Czechoslovakia, Canada, America come hundreds of photographs made in the fascinating field of natural history. The private life of the Black Widow Spider vies in interest with the Praying Mantis, a charging African Rhinoceros, Rhesus Monkeys and graceful but dangerous Rays. The stories of pollination, germination and growth are made clear before our eyes. How a spider spins its web becomes romantic when viewed by the microscopic camera.

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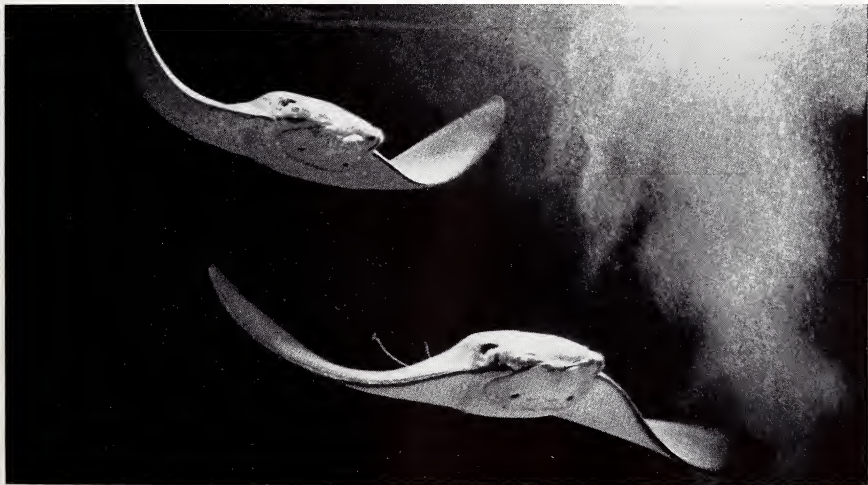


COURTSHIP OF THE BLACK WIDOW One of a series depicting the life cycle of this deadly insect by George Jenks and Lee Passmore.

PAPILIO LARVA Greatly enlarged photograph by Dr. R. D. Bird, Brandon, Manitoba, Canada. The exhibit of natural history photographs covers a wide range of photographs from microscopic studies to lion portraits. Of special interest are flashlight pictures of fish in aquarium tanks.



★ **AQUARIUM SHOT OF RAYS** Interesting action shot of two cow-nosed rays under water made with synchronized flashlight by Samuel Cady Dunton, the Aquarium, New York City.



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PRESS PHOTOGRAPHY • MISCELLANEOUS

In section ten are photographs used by the Press transmitted by wire, investigation of street lighting, and certain other investigations of polarized light. It is possible to reproduce a picture in a New York newspaper of plays in a California football game while the game is still in progress. It is now possible to employ polarized light in photography thus greatly simplifying the problems encountered in subjects of a highly reflecting nature. Included in the collection in this section are the dramatic Mississippi River flood disaster pictures. A series of prints show clearly all the apparatus used by Times Wide World and Acme News Service in transmitting news pictures over telephone lines. The Radio Corporation of America exhibits photoradio sending and receiving apparatus. The Metropolitan Museum of Art shows the use of polarizing screens in the reproduction of Paintings.

AMERICA'S WORST FLOOD Wirephoto of the Ohio River. Times Wide World.





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